



# UNITED STATES PATENT AND TRADEMARK OFFICE

*lan*

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,543	12/13/2001	Arlen L. Roesner	10014774 -1	8101

7590 12/09/2003

HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

CHERVINSKY, BORIS LEO

ART UNIT PAPER NUMBER

2835

DATE MAILED: 12/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/017,543

Applicant(s)

ROESNER ET AL.

Examiner

Boris L. Chervinsky

Art Unit

2835

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-9, 22-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski

Green discloses the assembly comprising a thermal interface disposed between a heat sink 42 and a heat generating electronic component 41, the thermal interface having a carrier 44 made of either metal foil, such as aluminum foil (col. 8, lines 26-27) or thermally conductive plastic sheet, the carrier having a layer of a phase-change material 45 on one side and a layer of a pliable thermally conductive material 46 on the other side (col. 3, line 65). Green discloses the claimed invention but having the pliable thermally conductive material being the phase change material therefore having that material on both sides of the carrier. Brzezinski discloses the thermal interface arrangement having the phase change material 58 (col. 6, lines 33-35) on one side of the carrier 56 and thermal grease on the opposite side of the carrier (col. 7, lines 12-16). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply phase change material on only one side of the carrier as disclosed by Green and have just any other pliable thermally conductive material, such as thermal grease, on the other side as disclosed by Brzezinski because:

Art Unit: 2835

- a. the pliable thermally conductive materials such as grease are well known and widely used as indicated by Green, col. 2, lines 27-33;
- b. to apply the thermal grease on one side of the carrier can be more economical since thermal grease is readily available and inexpensive;
- c. the thermal grease layer can be applied to the carrier in any desirable thickness;
- d. the thermal grease layer can be field applied on the carrier and does not need to be prefabricated as it may be the case with phase change material, therefore such modification to the thermal interface disclosed by Green would be a justified option.

3. Claims 10, 11, 13-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng et al.

Green discloses the claimed invention except a removable protective cover. Tzeng et al. disclose the thermal interface having a pressure sensitive layer 13 covered by a removable protective cover comprising a peelable backing. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use removable protective layer as disclosed by Tzeng in the structure disclosed by Green as to protect the pliable thermal compound layer prior to installation.

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Green et al. in view of Brzezinski and further in view of Tzeng, as applied to claim 10, and further in view of Lee et al.

Green discloses the claimed invention except a removable protective cap. Lee discloses the removable protective cap 56 to protect thermal grease 40 prior to installation. It would have been obvious to one having ordinary skill in the art at the time the invention

was made to have the protective removable cap as disclosed by Lee et al. in the device disclosed by Green et al. in order to protect pliable surface or thermal grease.

***Response to Arguments***

5. Applicant's arguments filed 11/12/03 have been fully considered but they are not persuasive. In response to applicant's argument that Brzezinski reference does not disclose a "layer" of the phase change material defined in specification as a "thin film" is not convincing because the material placed on one side of the membrane or carrier is broadly defined by Brzezinski and water or phase change materials are "preferable" materials and comprise "thin film", which is also relative term, disposed on one side of the carrier and thermal grease placed on the other side as to show that two different type of thermally conductive materials can be placed on the carrier, as presumably has not been shown in Green's reference, therefore the modification is solely based on the prior art and not on the applicant's disclosure as it is implied in applicant's Response to Office Action. It is also must be noted, as indicated in Board of Appeals decision regarding use of thermal grease, that these known materials can have the disadvantages pointed out in Green and in the specification, that reason alone is not enough to teach away from the use of such materials in thermal interface applications by one of ordinary skill in this art. See, e.g., *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

Art Unit: 2835

where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Tzeng discloses the removable protective covering comprising a peelable backing to protect pressure sensitive adhesive. It is obvious that protective cover can be used to protect any pliable or sticking surface including thermal grease or phase change material since it is widely known and used in industrial and domestic applications, such as domestic sticking tapes or pads.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Boris L. Chervinsky whose telephone number is 703-308-5429. The examiner can normally be reached on 8-5.

Art Unit: 2835

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on 703-308-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-5115.

**BORIS CHERVINSKY**  
**PRIMARY EXAMINER**

*Boris L. Chervinsky*  
12/5/13